

SEQUENCE LISTING

<110> GAN, Weiniu

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NUCLEIC ACID MOLECULES ENCODING THESE HUMAN RAS-LIKE
PROTEINS, AND USES THEREOF

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Pro	Gln	Leu	Val	Arg	Met	Phe	Leu	Met	Met	His	Pro	Trp	Tyr	Ile	Pro		
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Ser	Ser	Gln	Leu	Ala	Ala	Lys	Leu	Leu	His	Ile	Tyr	Gln	Gln	Ser	Arg		
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Lys	Asp	Asn	Ser	Asn	Ser	Leu	Gln	Val	Lys	Thr	Cys	His	Leu	Val	Arg		
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Tyr	Trp	Ile	Ser	Ala	Phe	Pro	Ala	Glu	Phe	Asp	Leu	Asn	Pro	Glu	Leu		
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Ala	Glu	Gln	Ile	Lys	Glu	Leu	Lys	Ala	Leu	Leu	Asp	Gln	Glu	Gly	Asn		
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Arg	Arg	His	Ser	Ser	Leu	Ile	Asp	Ile	Asp	Ser	Val	Pro	Thr	Tyr	Lys		
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Trp	Lys	Arg	Gln	Val	Thr	Gln	Arg	Asn	Pro	Val	Gly	Gln	Lys	Lys	Arg		
	130					135					140						
Lys	Met	Ser	Leu	Leu	Phe	Asp	His	Leu	Glu	Pro	Met	Glu	Leu	Ala	Glu		
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His	Leu	Thr	Tyr	Leu	Glu	Tyr	Arg	Ser	Phe	Cys	Lys	Ile	Leu	Phe	Gln		
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Asp	Tyr	His	Ser	Phe	Val	Thr	His	Gly	Cys	Thr	Val	Asp	Asn	Pro	Val		
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	195						200					205					
Leu	Met	Ile	Leu	Ser	Lys	Pro	Thr	Ala	Pro	Gln	Arg	Ala	Leu	Val	Ile		
	210				215					220							
Thr	His	Phe	Val	His	Val	Ala	Glu	Lys	Leu	Leu	Gln	Leu	Gln	Asn	Phe		
225				230						235				240			
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Trp	Glu	Gly	Leu	Thr	Glu	Leu	Val	Thr	Ala	Thr	Gly	Asn	Tyr	Gly	Asn		
	275					280					285						
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	355					360						365					
Asp	Gln	Tyr	Gln	Thr	Glu	Asp	Glu	Leu	Tyr	Gln	Leu	Ser	Leu	Gln	Arg		
	370				375						380						
Glu	Pro	Arg	Ser	Lys	Ser	Ser	Pro	Thr	Ser	Pro	Thr	Ser	Cys	Thr	Pro		
385				390						395				400			
Pro	Pro	Arg	Pro	Pro	Val	Leu	Glu	Glu	Trp	Thr	Ser	Ala	Ala	Lys	Pro		
			405						410				415				
Lys	Leu	Asp	Gln	Ala	Leu	Val	Val	Glu	His	Ile	Glu	Lys	Met	Val	Glu		
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Ser	Val	Phe	Arg	Asn	Phe	Asp	Val	Asp	Gly	Asp	Gly	His	Ile	Ser	Gln		
	435				440							445					
Glu	Glu	Phe	Gln	Ile	Ile	Arg	Gly	Asn	Phe	Pro	Tyr	Leu	Ser	Ala	Phe		
	450				455						460						

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Val	Ser	Tyr	Phe	Leu	Arg	Ser	Ser	Ser	Val	Leu	Gly	Gly	Arg	Met	Gly
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Phe	Val	His	Asn	Phe	Gln	Glu	Ser	Asn	Ser	Leu	Arg	Pro	Val	Ala	Cys
			500					505					510		
Arg	His	Cys	Lys	Ala	Leu	Ile	Leu	Gly	Ile	Tyr	Lys	Gln	Gly	Leu	Lys
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Cys	Arg	Ala	Cys	Gly	Val	Asn	Cys	His	Lys	Gln	Cys	Lys	Asp	Arg	Leu
	530					535					540				
Ser	Val	Glu	Cys	Arg	Arg	Arg	Ala	Gln	Ser	Val	Ser	Leu	Glu	Gly	Ser
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Ala	Pro	Ser	Pro	Ser	Pro	Met	His	Ser	His	His	His	Arg	Ala	Phe	Ser
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Phe	Ser	Leu	Pro	Arg	Pro	Gly	Arg	Arg	Gly	Ser	Arg	Pro	Pro	Glu	Ile
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Val	Arg	Ser	Glu	Pro	Gly	Gly	Arg	Leu	Pro	Glu	Arg	Ser	Leu	Gly	Pro
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Ala	His	Pro	Ala	Pro	Ala	Ala	Met	Ala	Gly	Thr	Leu	Asp	Leu	Asp	Lys
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Asp	Ser	Gly	Lys	Val	Arg	Asp	Pro	Gln	Leu	Val	Arg	Met	Phe	Leu	Met
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Met	His	Pro	Trp	Tyr	Ile	Pro	Ser	Ser	Gln	Leu	Ala	Ala	Lys	Leu	Leu
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His	Ile	Tyr	Gln	Gln	Ser	Arg	Lys	Asp	Asn	Ser	Asn	Ser	Leu	Gln	Val
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Lys	Thr	Cys	His	Leu	Val	Arg	Tyr	Trp	Ile	Ser	Ala	Phe	Pro	Ala	Glu
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Phe	Asp	Leu	Asn	Pro	Glu	Leu	Ala	Glu	Gln	Ile	Lys	Glu	Leu	Lys	Ala
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Leu	Leu	Asp	Gln	Glu	Gly	Asn	Arg	Arg	His	Ser	Ser	Leu	Ile	Asp	Ile
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Asp	Ser	Val	Pro	Thr	Tyr	Lys	Trp	Lys	Arg	Gln	Val	Thr	Gln	Arg	Asn
		180						185					190		
Pro	Val	Gly	Gln	Lys	Lys	Arg	Lys	Met	Ser	Leu	Leu	Phe	Asp	His	Leu
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Glu	Pro	Met	Glu	Leu	Ala	Glu	His	Leu	Thr	Tyr	Leu	Glu	Tyr	Arg	Ser
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Phe	Cys	Lys	Ile	Leu	Phe	Gln	Asp	Tyr	His	Ser	Phe	Val	Thr	His	Gly

225					230					235				240
Cys	Thr	Val	Asp	Asn	Pro	Val	Leu	Glu	Arg	Phe	Ile	Ser	Leu	Phe
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Ser	Val	Ser	Gln	Trp	Val	Gln	Leu	Met	Ile	Leu	Ser	Lys	Pro	Thr
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Pro	Gln	Arg	Ala	Leu	Val	Ile	Thr	His	Phe	Val	His	Val	Ala	Glu
		275					280					285		Lys
Leu	Leu	Gln	Leu	Gln	Asn	Phe	Asn	Thr	Leu	Met	Ala	Val	Val	Gly
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Ser	Pro	Glu	Thr	Ile	Lys	Leu	Trp	Glu	Gly	Leu	Thr	Glu	Leu	Val
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Ala	Thr	Gly	Asn	Tyr	Gly	Asn	Tyr	Arg	Arg	Arg	Leu	Ala	Ala	Cys
			340					345					350	Val
Gly	Phe	Arg	Phe	Pro	Ile	Leu	Gly	Val	His	Leu	Lys	Asp	Leu	Val
	355					360						365		Ala
Leu	Gln	Leu	Ala	Leu	Pro	Asp	Trp	Leu	Asp	Pro	Ala	Arg	Thr	Arg
	370					375					380			Leu
Asn	Gly	Ala	Lys	Met	Lys	Gln	Leu	Phe	Ser	Ile	Leu	Glu	Glu	Leu
385					390					395				Ala
Met	Val	Thr	Ser	Leu	Arg	Pro	Pro	Val	Gln	Ala	Asn	Pro	Asp	Leu
			405						410					Leu
Ser	Leu	Leu	Thr	Val	Ser	Leu	Asp	Gln	Tyr	Gln	Thr	Glu	Asp	Glu
			420					425					430	Leu
Tyr	Gln	Leu	Ser	Leu	Gln	Arg	Glu	Pro	Arg	Ser	Lys	Ser	Ser	Pro
	435						440					445		Thr
Ser	Pro	Thr	Ser	Cys	Thr	Pro	Pro	Pro	Arg	Pro	Pro	Val	Leu	Glu
	450					455					460			Glu
Trp	Thr	Ser	Ala	Ala	Lys	Pro	Lys	Leu	Asp	Gln	Ala	Leu	Val	Val
465					470					475				Glu
His	Ile	Glu	Lys	Met	Val	Glu	Ser	Val	Phe	Arg	Asn	Phe	Asp	Val
			485						490				495	Asp
Gly	Asp	Gly	His	Ile	Ser	Gln	Glu	Glu	Phe	Gln	Ile	Ile	Arg	Gly
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Phe	Pro	Tyr	Leu	Ser	Ala	Phe	Gly	Asp	Leu	Asp	Gln	Asn	Gln	Asp
	515						520					525		Gly
Cys	Ile	Ser	Arg	Glu	Glu	Met	Val	Ser	Tyr	Phe	Leu	Arg	Ser	Ser
	530					535					540			Ser
Val	Leu	Gly	Gly	Arg	Met	Gly	Phe	Val	His	Asn	Phe	Gln	Glu	Ser
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Ser	Leu	Arg	Pro	Val	Ala	Cys	Arg	His	Cys	Lys	Ala	Leu	Ile	Leu
			565						570					Gly
Ile	Tyr	Lys	Gln	Gly	Leu	Lys	Cys	Arg	Ala	Cys	Gly	Val	Asn	Cys
			580					585					590	His
Lys	Gln	Cys	Lys	Asp	Arg	Leu	Ser	Val	Glu	Cys	Arg	Arg	Arg	Ala
	595					600						605		Gln
Ser	Val	Ser	Leu	Glu	Gly	Ser	Ala	Pro	Ser	Pro	Ser	Pro	Met	His
	610					615					620			Ser
His	His	His	Arg	Ala	Phe	Ser	Phe	Ser	Leu	Pro	Arg	Pro	Gly	Arg
625				630						635				Arg
Gly	Ser	Arg	Pro	Pro	Glu	Ile	Arg	Glu	Glu	Glu	Val	Gln	Thr	Val
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Asp	Gly	Val	Phe	Asp	Ile	His	Leu							
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 <213> Mus musculus

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 Ser Ser Gln Leu Ala Ser Lys Leu Leu His Phe Tyr Gln Gln Ser Arg
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 Lys Asp Asn Ser Asn Ser Leu Gln Val Lys Thr Cys His Leu Val Arg
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 Tyr Trp Val Ser Ala Phe Pro Ala Glu Phe Asp Leu Asn Pro Glu Leu
 85 90 95
 Ala Glu Pro Ile Lys Glu Leu Lys Ala Leu Leu Asp Gln Glu Gly Asn
 100 105 110
 Arg Arg His Ser Ser Leu Ile Asp Ile Glu Ser Val Pro Thr Tyr Lys
 115 120 125
 Trp Lys Arg Gln Val Thr Gln Arg Asn Pro Val Glu Gln Lys Lys Arg
 130 135 140
 Lys Met Ser Leu Leu Phe Asp His Leu Glu Pro Met Glu Leu Ala Glu
 145 150 155 160
 His Leu Thr Tyr Leu Glu Tyr Arg Ser Phe Cys Lys Ile Leu Phe Gln
 165 170 175
 Asp Tyr His Ser Phe Val Thr His Gly Cys Thr Val Asp Asn Pro Val
 180 185 190
 Leu Glu Arg Phe Ile Ser Leu Phe Asn Ser Val Ser Gln Trp Val Gln
 195 200 205
 Leu Met Ile Leu Ser Lys Pro Thr Ala Thr Gln Arg Ala Leu Val Ile
 210 215 220
 Thr His Phe Val His Val Ala Glu Lys Leu Leu Gln Leu Gln Asn Phe
 225 230 235 240
 Asn Thr Leu Met Ala Val Val Gly Gly Leu Ser His Ser Ser Ile Ser
 245 250 255
 Arg Leu Lys Glu Thr His Ser His Val Ser Pro Asp Thr Ile Lys Leu
 260 265 270
 Trp Glu Gly Leu Thr Glu Leu Val Thr Ala Thr Gly Asn Tyr Ser Asn
 275 280 285
 Tyr Arg Arg Arg Leu Ala Ala Cys Val Gly Phe Arg Phe Pro Ile Leu
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 Gly Val His Leu Lys Asp Leu Val Ala Leu Gln Leu Ala Leu Pro Asp
 305 310 315 320
 Trp Leu Asp Pro Gly Arg Thr Arg Leu Asn Gly Ala Lys Met Arg Gln
 325 330 335
 Leu Phe Ser Ile Leu Glu Glu Leu Ala Met Val Thr Ser Leu Arg Pro
 340 345 350
 Pro Val Gln Ala Asn Pro Asp Leu Leu Ser Leu Leu Thr Val Ser Leu
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 Asp Gln Tyr Gln Thr Glu Asp Glu Leu Tyr Gln Leu Ser Leu Gln Arg
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 Glu Pro Arg Ser Lys Ser Ser Pro Thr Ser Pro Thr Ser Cys Thr Pro
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 Pro Pro Arg Pro Pro Val Leu Glu Glu Trp Thr Ser Val Ala Lys Pro

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Met	Met	Val	Ser	Leu	Gly	His	Leu	Ala	Lys	Gly	Ala	Ser	Leu	Asp	Asp
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Leu	Ile	Asp	Ser	Cys	Ile	Gln	Ser	Phe	Asp	Ala	Asp	Gly	Asn	Leu	Cys
	50					55					60				
Arg	Ser	Asn	Gln	Leu	Leu	Gln	Val	Met	Leu	Thr	Met	His	Arg	Ile	Ile
65					70					75					80
Ile	Ser	Ser	Ala	Glu	Leu	Leu	Gln	Lys	Leu	Met	Asn	Leu	Tyr	Lys	Asp
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Ala	Leu	Glu	Lys	Asn	Ser	Pro	Gly	Ile	Cys	Leu	Lys	Ile	Cys	Tyr	Phe
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Val	Arg	Tyr	Trp	Ile	Thr	Glu	Phe	Trp	Ile	Met	Phe	Lys	Met	Asp	Ala
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Ser	Leu	Thr	Ser	Thr	Met	Glu	Glu	Phe	Gln	Asp	Leu	Val	Lys	Ala	Asn
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Gly	Glu	Glu	Ser	His	Cys	His	Leu	Ile	Asp	Thr	Thr	Gln	Ile	Asn	Ser
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Arg	Asp	Trp	Ser	Arg	Lys	Leu	Thr	Gln	Arg	Ile	Lys	Ser	Asn	Thr	Ser
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Lys	Lys	Arg	Lys	Val	Ser	Leu	Leu	Phe	Asp	His	Leu	Glu	Pro	Glu	Glu
			180					185					190		
Leu	Ser	Glu	His	Leu	Thr	Tyr	Leu	Glu	Phe	Lys	Ser	Phe	Arg	Arg	Ile
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Ser	Phe	Ser	Asp	Tyr	Gln	Asn	Tyr	Leu	Val	Asn	Ser	Cys	Val	Lys	Glu
	210					215					220				
Asn	Pro	Thr	Met	Glu	Arg	Ser	Ile	Ala	Leu	Cys	Asn	Gly	Ile	Ser	Gln
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Trp	Val	Gln	Leu	Met	Val	Leu	Ser	Arg	Pro	Thr	Pro	Gln	Leu	Arg	Ala
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Glu	Val	Phe	Ile	Lys	Phe	Ile	His	Val	Ala	Gln	Lys	Leu	His	Gln	Leu
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Gln	Asn	Phe	Asn	Thr	Leu	Met	Ala	Val	Ile	Gly	Gly	Leu	Cys	His	Ser
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Ser	Ile	Ser	Arg	Leu	Lys	Glu	Thr	Ser	Ser	His	Val	Pro	His	Glu	Ile
	290					295					300				
Asn	Lys	Val	Leu	Gly	Glu	Met	Thr	Glu	Leu	Leu	Ser	Ser	Cys	Arg	Asn
305					310					315					320
Tyr	Asp	Asn	Tyr	Arg	Arg	Ala	Tyr	Gly	Glu	Cys	Thr	His	Phe	Lys	Ile
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Pro	Ile	Leu	Gly	Val	His	Leu	Lys	Asp	Leu	Ile	Ser	Leu	Tyr	Glu	Ala
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Met	Pro	Asp	Tyr	Leu	Glu	Asp	Gly	Lys	Val	Asn	Val	Gln	Lys	Leu	Leu
		355					360					365			
Ala	Leu	Tyr	Asn	His	Ile	Asn	Glu	Leu	Val	Gln	Leu	Gln	Asp	Val	Ala
		370				375					380				
Pro	Pro	Leu	Asp	Ala	Asn	Lys	Asp	Leu	Val	His	Leu	Leu	Thr	Leu	Ser
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Leu	Asp	Leu	Tyr	Tyr	Thr	Glu	Asp	Glu	Ile	Tyr	Glu	Leu	Ser	Tyr	Ala
			405						410					415	
Arg	Glu	Pro	Arg	Asn	His	Arg	Ala	Pro	Pro	Leu	Thr	Pro	Ser	Lys	Pro
			420					425					430		
Pro	Val	Val	Val	Asp	Trp	Ala	Ser	Gly	Val	Ser	Pro	Lys	Pro	Asp	Pro
		435					440					445			

Lys	Thr	Ile	Ser	Lys	His	Val	Gln	Arg	Met	Val	Asp	Ser	Val	Phe	Lys
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Asn	Tyr	Asp	Leu	Asp	Gln	Asp	Gly	Tyr	Ile	Ser	Gln	Glu	Glu	Phe	Glu
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Lys	Ile	Ala	Ala	Ser	Phe	Pro	Phe	Ser	Phe	Cys	Val	Met	Asp	Lys	Asp
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Gln	Glu	Thr	Thr	Tyr	Leu	Lys	Pro	Thr	Phe	Cys	Asp	Asn	Cys	Ala	Gly
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Lys	Arg	Ser	Lys	Ser											
				580											